

**ENVIRONMENTAL ASSESSMENT  
EQIP – LOWER RIO GRANDE GPA  
2001**

**INTRODUCTION**

This environmental assessment (EA) is being prepared by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) to comply with the requirements of the National Environmental Policy Act of 1969 and implementing regulation at 40CFR Parts 1500-1508. The EA will assist NRCS in determining whether the proposed action will have a significant impact on the quality of the human environment and therefore requires preparation of an Environmental Impact Statement. The Lower Rio Grande Geographic Priority Area (GPA) was developed in 1997 after a series of public meetings held in both Sierra and Socorro counties.

**NEED FOR PROPOSED ACTION:**

**Purpose and Need for Action:** There is a purpose and need in the Lower Rio Grande GPA to ensure an adequate supply of high quality water in order to improve range condition and trend, sustain irrigated agriculture, enhance recreation opportunities, provide for a drinking water supply, and enrich wildlife habitat.

**Background:**

This is to be the last year of a 5-year program. Area encompassed by the GPA is approximately 3,330,671 acres and is comprised of similar watersheds that are characterized by similar resource problems. Brush encroachment is a major resource problem on rangeland within the GPA. This has led to a decrease in vegetative diversity and herbaceous ground cover, which in turn has increased erosion, sedimentation and subsequent water quantity and quality problems.

Small farms occur within the GPA along several tributaries to the Rio Grande. The majority of the farms derive their water from acequias, and have irrigation efficiencies of approximately 20% to 50%. Fields with excessive slope and unimproved water delivery systems encourage erosion and runoff that contribute to sedimentation problems. High densities of woody vegetation within the watersheds of streams that supply water to the acequias have decreased the water available for irrigation. A ten-mile reach of Alamosa creek that is located within the GPA has been declared impaired due to turbidity (1).

**ALTERNATIVES:**

Alternative 1. No Action

Alternative 2. Proposed Action: Use NRCS Environmental Quality Incentives Program (EQIP) authorities to assist with the development of a conservation system on grazing lands and irrigated lands within the Lower Rio Grande GPA.

The following practices may be applied singly or in any combination thereof:

1. Brush management
2. Livestock water pipeline
3. Livestock water storage facility
4. Livestock well
5. Fencing
6. Irrigation pipelines
7. Concrete ditch lining
8. Land leveling
9. Prescribed Grazing
10. Forage Harvest Management
11. Irrigation Water Management
12. Irrigation System – Surface and Subsurface
13. Nutrient Management
14. Pest Management
15. Wildlife Upland Habitat Management

### **SCOPING OF ISSUES FOR UNIQUE AND PROTECTED RESOURCES IN THE AREA:**

*Cultural Resources and Historic Properties:* All practices that are considered undertakings under the programmatic agreement between the New Mexico State Historic Preservation Officer (SHPO) and NRCS will be surveyed for cultural resources. In addition to this onsite survey, a records check will be completed by the State Cultural Resources Specialist NRCS. Any planned practice considered an undertaking will have a section 106 consultation completed before implementation.

*Threatened and Endangered Species:* A records check of US Fish and Wildlife Service (USFWS) (2) and NM Department of Game and Fish (NMDG&F) (3) databases lists 13 threatened or endangered species within the GPA. If any of the endangered species identified could be impacted by application of practices within this GPA, consultation with the US Fish and Wildlife Service (USFWS) will be initiated before the implementation of the practice. For example, brush management involving salt cedar in the Rio Grande floodplain will not be undertaken before consultation with the USFWS to determine potential habitat and impacts to the Southwestern Willow Flycatcher.

*Wetlands:* Section 404 permits will be obtained for any practice that comes under the jurisdiction of the Clean Water Act (33 USC 1344) and Federal Regulations 33 CFR 323.4) and the wetland provisions of the 1985 Food Security Act as amended.

### **IMPACTS AND EFFECTS OF ALTERNATIVES:**

Tables 1 and 2 compare the overall effects of each of the alternatives discussed below.

#### **Alternative 1. No Action**

A substantial amount of conservation treatment has been accomplished in concert with measures applied under the previous 4 years of EQIP and other cost share programs in the Lower Rio Grande GPA. If this alternative is adopted the amount of conservation treatment applied in this

GPA will be reduced. It is impossible to determine to what degree this reduction will be. If no action is taken, the grazing lands will continue to degrade and sedimentation of the surface water within the GPA will not be reduced. Irrigation efficiencies will remain low and sedimentation caused by erosion and runoff from the irrigated fields will continue to have a negative impact on water quality.

## **Alternative 2. Proposed Action**

The effects of the practices listed below are documented in the NRCS FOTG Section V. (4)

1. Brush Management – Removal, reduction, or manipulation of non-herbaceous plants.  
Mechanical. This method will only apply to One Seed Juniper, Pinyon, Mesquite, and Salt Cedar. The need for control and degree of infestation will be determined by criteria as outlined in Section IV of the Field Office Technical Guide (FOTG) (4) and the National Range and Pasture Handbook (NRPH) (5). Short-term impacts include: Soil compaction and temporary erosion concerns created by use of heavy equipment. Water quality impacts due to the short term increase in water based erosion. Air quality impacted by dust and exhaust generated by heavy equipment use during the brush removal process. Additionally air quality can be impacted when wind rows or piles are burned. Herbaceous vegetation may be impacted during the brush removal process. The noise and dust generated by heavy equipment could have an impact on people within the vicinity of the project.

b. Chemical. This method is applicable to all species, which may be controlled within the GPA. The need for control, degree of infestation as well as recommended chemical and application methods will be determined by criteria as outlined in Section IV of the FOTG. Short-term impacts may include soil compaction if ground-spraying equipment is used. Non target species may be impacted by application of approved chemicals. Chemical brush management will not be applied if it is determined that the density of Non Target Species is above a level that is critical to the ecological health of the plant community. Any chemical application will be applied with strict adherence to the label.

Long-term benefits /effects of brush control include improved rangeland similarity index (the percentage of a specific vegetation state plant community that is present on the site) and trend (a rating of the direction of change in an existing plant community relative to the historic climax plant community for the ecological site), increased herbaceous cover and biodiversity, decreased runoff and sedimentation, and reduced erosion. RUSLE and WEQ indicate that erosion rates will be reduced from three T (the T factor is the soil loss tolerance, defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained) to T over time. Refer to NRCS Tech Note 27 (7) and 28 (7) and computations made during planning process.

Other effects of brush management include benefits to wildlife as documented by NRCS Wildlife Habitat Evaluation Guides (WHEG).

2. Pipeline - Pipeline installed for conveying water for livestock or for recreation. The diameter will vary from 1 to 2 inches and materials will include polyvinyl chloride (PVC) and polyethylene (PE) pipe. The methods of installation will include ripping, trenching, or V-trench (Road Grader). Any equipment used for installation must be capable of installing pipe

a minimum of 15 inches below ground surface. In areas where steep terrain or shallow soils prevent burying, the pipe may be laid/installed above ground. Reference Sect. IV FOTG. Short-term effects may include increased water erosion in disturbed area and soil compaction from heavy equipment. A temporary increase in sedimentation may effect water quality. Air quality may be impacted by dust and exhaust generated by heavy equipment use during the installation process. Temporary removal of vegetation will occur in area disturbed by pipeline installation. Noise of installation may disturb wildlife in the vicinity. Area disturbed may be aesthetically displeasing to the public until natural revegetation has taken place.

3. Trough or Tank – A trough or tank, with needed devices for water control and wastewater disposal, installed to provide drinking water for livestock. Tanks and troughs will vary in size, construction and material. They will be permanently set and installed in locations that facilitate livestock distribution. Materials will include steel, fiberglass and rubber tire. Sizes will vary from 400 to more than 30,000 gallons. Short-term effects may include: minor land disturbance may be required to level the site for installation. Site preparation before installation may result in increased soil erosion. Amount of erosion caused by this process will not be significant and will not impair air or water quality. Vegetation may be destroyed in immediate area of site preparation. Noise generated during installation may disturb wildlife in the vicinity.
4. Well – A well constructed or improved to provide water for irrigation, livestock, wildlife, or recreation. Location will be determined by the need for water and known availability of ground water. Diameter of well depends on type of equipment used for drilling and planned pumping method. Depth of well will vary from 50 to over 500 feet and type of casing used will be plastic or steel. In general, volumes of water produced will vary from 2 gallons per minute to 20 gallons per minute. All proposed wells will have a permit approved from the State Engineers office before drilling. Short-term effects could include the following. Minor land disturbance may result from well site preparation and drilling. The noise generated by drilling equipment may disturb wildlife.

Long term effects of the Livestock water developments listed above in items 2,3 and 4: Facilitates improved grazing management (See Sect. IV FOTG–Prescribed Grazing) and enhances wildlife habitat (see NRCS Wildlife Habitat Evaluation Guides). Long-term effects of livestock water systems may also include improved rangeland similarity index and trend, increased herbaceous cover and biodiversity, decreased runoff and sedimentation, and reduced erosion. RUSSLE and WEQ indicate that erosion rates will be reduced from three T to T over time. Refer to NRCS Tech Note 33 and 34, FOTG Sect. IV, National Range and Pasture Handbook (NRPH), and computations made during planning process. Other long-term effect could include sacrifice zones around the watering facility and the structures installed may be aesthetically displeasing to some individuals.

5. Fences – A constructed barrier to livestock, wildlife or people. Fences will vary in design, length, and location according to goals and objectives of the grazing management system (Sect IV FOTG-Prescribed Grazing). Types of fences constructed will either be a 4-strand barbed wire or a 2 strand smooth wire electric fence. Short-term effects have little effect on resources unless a right of way is cleared by equipment prior to fence construction. For fences requiring a mechanically cleared right away soil erosion rates may be increased within

the area of disturbance. An increase in sedimentation may take place that may impair water quality. Dust and exhaust produced from mechanical clearing may have a short-term negative effect on air quality. Some loss of vegetation will occur within the right of way. Noise generated from equipment and increased human activity may disturb wildlife in the vicinity. Fencing will facilitate improved grazing management (SECT IV FOTG – Prescribed Grazing). Fences will be constructed to NRCS standards and specifications in order to reduce impact on movement and migration of wildlife. Long term effects of fencing may include improved rangeland similarity index and trend, increase herbaceous cover and biodiversity, decreased runoff and sedimentation, and reduced erosion. RUSSLE and WEQ indicate that erosion rates will be reduced from three T to T over time. Refer to NRCS Tech Note 33 and 34, FOTG Sect. IV, National Range and Pasture Handbook (NRPH), and computations made during planning process. Fences may be aesthetically displeasing to some individuals.

6. Irrigation Pipeline – A pipeline and appurtenances installed in an irrigation system. All pipelines installed will be plastic (PVC) pipe. Installation of an irrigation pipeline requires that a trench be excavated at a depth deep enough to allow the placement of 30 inches of cover over the top of the pipe. The depth of the trench may vary depending on the planned diameter. Short-term effects may include dust and noise generated by the equipment used during the installation period. It is not expected that any increase in soil erosion rates will occur or that any impairment to water quality or quantity will take place as a result of installation. Plants and animals will not be impacted by the installation of this practice.
7. Concrete Ditch Lining – A fixed lining of impervious material installed in an existing or newly constructed irrigation field ditch, irrigation canal, or lateral: Ditch lining requires the construction of a graded ditch pad which will be constructed according to the planned slope of the ditch and to the proper height and top width which will allow the contractor to construct the ditch according to NRCS specifications. The fill material needed to construct the ditch will either be taken from an adjacent field which is being leveled or another borrow area in the vicinity of the planned ditch. If the fill material is obtained off farm, the landowner will obtain the proper permits and permissions necessary to complete the job. Short-term effects- If the source of the fill material for the ditch pad comes from a leveling operation, the leveled area may become temporarily susceptible to wind erosion. This could apply to any borrow area used to obtain fill material. No short-term effects on water quality and quantity are expected. Placement of the fill material may create dust because of the dirt moving process itself. Plants and animals are not expected to be impacted by the installation of this practice. The noise and dust generated by equipment during installation may disturb some individuals in the vicinity.

8. Land Leveling – Reshaping the surface of land to be irrigated to planned grades: A design will be provided which indicates where the cut and fill areas are located. The Soil will then be loosened by either disking, ripping or plowing or by a combination there of and then scraped or hauled from the high areas to the low areas. The average earth moved during construction ranges from 150 to 300 cubic yards /acre. Short-term effects – The land leveling process pulverizes the soil, making it temporarily susceptible to wind erosion until water can be applied. Slopes are designed to eliminate runoff. No short-term water quantity or quality problems are expected during the installation process. The noise and dust generated by equipment during installation may disturb some individuals in the vicinity.

Long Term effects – Benchmark efficiencies of irrigation applications, range from 20 - 50 percent. Application of improved irrigation systems as described in practices 6 through 8 will improve irrigation efficiencies on the farms treated to 60 - 65 % (as indicated in FO irrigation trials). Because of the fluctuating water supply on the acequias, this correlates to a saving of approximately 1-acre foot per acre annually. Irrigation systems are designed in such a manner (see FOTG Irrigation Guide) to reduce or eliminate erosion, surface runoff and sedimentation. No wetlands or threatened and endangered species will be impacted.

9. Prescribed Grazing – The controlled harvest of vegetation with grazing or browsing animals managed with the intent to achieve a specified objective.

Short term effects - It may be necessary to install practices 2 through 5 listed above, or any combination thereof, in order to implement Prescribed Grazing. Short-term effects of these practices are detailed under items 2 through 6. A time period may be required for training the landowner/manager depending on the complexity of the grazing system.

Long term effects – Prescribed Grazing can reduce sheet and rill erosion. Reduced gully erosion and lessened stream bank degradation may occur. Other possible effects are increased herbaceous ground cover and improved range trend and similarity index. Decreased turbidity and increased low flows of streams may occur.

10. Forage Harvest Management – The timely cutting and removal of forages from the field as hay, green-chop, or ensilage. This practice does not require the application of structural or ground disturbing practices. Short term effects - No short-term effects have been identified. Long term effects – Decreased sheet and rill erosion, decreased gully and stream bank erosion and decreased irrigation induced erosion may occur. Decreased runoff and flooding may occur. Decreased sedimentation and resultant decreases in turbidity may occur.

11. Wildlife Upland Habitat Management – Creating, maintaining, or enhancing areas, including wetland, for food and cover for upland wildlife. This practice may require the installation of one or more of the practices listed in 2 through 6 above for implementation. Short-term effects of practices installed to implement this practice are detailed under items 2 through 6. No other short-term effects have been identified. Long term effects – Reduced runoff and flooding, reduced sheet and rill erosion, and reduced sedimentation and turbidity may occur. A reduction in gully erosion and stream bank degradation may also result from this practice.

12. Irrigation System Surface and Subsurface – A planned irrigation system in which all necessary water control structures have been installed for the efficient distribution of

irrigation water by surface means, such as furrows, borders, contour levees, or contour ditches, or by subsurface means. Structural practices listed under items 6 through 8 may be required in order to implement this practice. The short-term effects of practices installed to implement this practice are detailed under items 6 through 8. Long term effects of this practice include decreased irrigation induced erosion, increased irrigation efficiencies, decreased runoff and a resultant decrease in sedimentation and turbidity.

13. Irrigation Water Management – Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner. An irrigation system must be in place to apply this practice. This practice could require the installation of one or more of the structural practices listed under items 6 through 8. The short-term effects of practices installed to implement IWM are listed under items 6 through 8. Long term effects of IWM include increased irrigation efficiencies and subsequent water savings. The amount of water saved varies according to the crop being grown and the type of irrigation system being used. In general it is expected that approximately 1 acre foot per acre of water will be saved annually where this practice is implemented. Reduced sediment yields and decreased turbidity are also expected effects of IWM.
14. Nutrient Management – Managing the amount, form, placement, and timing of applications of plant nutrients. Nutrient application recommendations will be based on soil tests or recommendations provided by New Mexico State University (6). Nutrients will be applied in liquid or granular form. Granular fertilizers are generally broadcast using a pull type wheel driven broadcast sprayer or a power take off pull type broadcast sprayer. Both types are calibrated prior to use. Nitrogen is generally applied in 2 to 3 split applications. Liquid fertilizers are generally formulations of nitrogen that are applied in split applications through irrigation water. Short-term effects may include costs for soil testing and training requirements for producers to properly apply this practice. Long term effects can include increased plant productivity, which in turn can increase plant cover on permanent pastures. Additionally decreased runoff, sedimentation and turbidity may occur.
15. Pest Management – Managing agricultural pest infestations (including weeds, insects, and diseases) to reduce adverse effects on plant growth, crop production, and environmental resources. The planned integrated pest management system will include appropriate cultural, biological and chemical controls singly or in any combination to control the target pest(s). When chemical pesticides are used, the label will be strictly adhered to. Short-term effects could include chemical drift depending on the type of equipment used. Long term effects can include increased plant productivity, which in turn could increase plant cover. Decreased runoff, sedimentation and turbidity may occur.

Table 1

<i>Comparison of Alternatives</i>				
Effects on Needs				
<b>Alternatives</b>	Irrigation Efficiency (80 acres) (%)	Water Supply (acre-feet saved)	Similarity Index & Trend Change (25,000 acres)	Installation Costs \$
<b>1. No Action</b>	< 50%	30	0-50 with downward trend	\$ 73,613.00
<b>2. Alternative 2</b>	> 75 %	200	25-75 with upward trend	\$ 165,003.00

<b>TABLE 2</b>	ALTERNATIVE 1	ALTERNATIVE 2
<b>Conservation Treatment</b>	<b>Treatment by Landowner Initiative and SWCD Alone</b>	<b>Treatment with Landowner, SWCD, others and NRCS EQIP Assistance Cumulatively</b>
Brush Management	0 Acres	640 Acres
Livestock Water Pipeline	23,250 Feet	35,000 Feet
Livestock Water Storage Facility	16,000 Gal.	30,000 Gal.
Livestock Well	600 feet	1600 Feet
Fencing	13300 Feet	32,000 Feet
Irrigation Pipeline	1,500 Feet	3,000 Feet
Concrete Ditch Lining	1,200 Feet	2,500 Feet
Land Leveling	50 Acres	80 Acres
Prescribed Grazing	5000 Acres	25,000 Acres
Forage Harvest Management	20 Acres	30 Acres
Irrigation Water Management	0 Acres	80 Acres
Irrigation System - Surface and Subsurface	3 Ea.	8 Ea.
Nutrient Management	0 Acres	80 Acres
Pest Management	0 Acres	20 Acres
Upland Wildlife Habitat Management	640 Acres	25,000 Acres

## REFERENCES:

State of New Mexico 303(d) List for Assessed Stream and River Reaches

<http://ifw2es.fws.gov/endangeredspecies/lists/ListSpecies.cfm>

New Mexico Game and Fish. Biota Information System of New Mexico BISON. 24 pp.  
Jan 2000

US Department of Agriculture, Natural Resources Conservation Service Field Office  
Technical Guide, Section V, Conservation Effects.

US Department of Agriculture, Natural Resources Conservation Service Field Office  
Technical Guide, Section IV, Standards and Specifications.



US Department of Agriculture, Natural Resources Conservation Service National Range  
and Pasture Handbook

US Department of Agriculture, Natural Resources Conservation Service Agronomy  
Technical Note 28. Water Erosion-Universal Soil Loss Equation.  
April 1984.

US Department of Agriculture, Natural Resources Conservation Service Agronomy  
Technical Note 27. ECS-Revision of the WEQ Modified  
“T” Values Table. October 1995.

**Persons and Agencies Consulted:**

Local work group meetings and attendees of January 21, 1997, and March 4, 1997 where this  
proposal was discussed and formulated. See list of participants of these meetings attached as  
Appendix A.

**FINDING OF NO SIGNIFICANT IMPACT  
FOR THE IMPLEMENTATION OF EQIP  
IN THE LOWER RIO GRANDE WATERSHED GPA**

**INTRODUCTION**

The Lower Rio Grande GPA is a federally assisted action under the Environmental Quality Incentives Program (EQIP), with assistance from the Natural Resources Conservation Service (NRCS). An environmental assessment was undertaken in connection with the development of this proposed action. This assessment was conducted in consultation with Local, State, and Federal agencies. Data developed during the assessment are available, upon request, from:

U. S. Department of Agriculture  
Natural Resources Conservation Service  
T or C Field Office  
T or C, New Mexico 87901

The Environmental Assessment (EA) is attached for reference.

**DETERMINATION OF SIGNIFICANCE**

Table 1. Determination of Significance of Proposed Action.

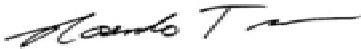
CONTEXT	INTENSITY	REASONS FOR NON-SIGNIFICANCE
Water savings are estimated at 170 ac. Ft. annually. This represents approximately 2.5% of the water used by irrigated agriculture.	Permanent water savings annually	Water allocation is beyond the control of NRCS. The total water used in the GPA will essentially remain unchanged.
Improved range trend on 25000 acres. Improved similarity index from 40% to 50% on 25000 acres. This represents 0.1% Of the rangeland in the GPA.	Permanent improvement to rangeland treated.	Rangeland throughout the GPA will remain essentially unchanged.
Reduced erosion from 3T (tolerance) to T on approximately 25000 acres. This represents 0.05% of the estimated erosion in the GPA.	Permanent reduction in erosion.	Total estimated erosion within the GPA would essentially remain unchanged.

Other considerations related to context and intensity are discussed as follows. Disturbance will occur on approximately 0.1% of the area within the GPA. Because of the small size of the area disturbed and the rural nature of the GPA public health and safety concerns are insignificant. Areas of rangeland and irrigated land to be treated with EQIP represent approximately 0.1% of the total area in the GPA therefore no significant impact to unique areas is expected. No issues or

concerns were expressed at the local work group meetings and because of the small area to be treated and rural setting no significant controversy is expected. All proposed actions from the proposed alternative have been undertaken in the local area before, and results are known, therefore uncertainty and risk are insignificant. Due to the small area to be treated, funding constraints and the availability of local cost share programs there is no precedent for future actions. The money spent by local soil and water conservation districts and individuals will have a similar impact as the proposed alternative and both alternatives combined will not have significant cumulative impacts. Although there are sites listed on the National Register of Historic Places and cultural resources within the GPA boundaries, no practices will be installed that will affect them and all practices installed with EQIP assistance that are considered undertakings will undergo a records check and Section 106 Consultation with SHPO. There are no anticipated effects on endangered species or their critical habitat. However, the USFWS will be consulted before any practices are undertaken in areas of critical habitat or known endangered species occurrence. No known laws will be violated as a result of the implementation of the proposed alternative.

**Finding of No Significant Impact:**

This finding is based on the evidence presented in the environmental assessment of impacts and alternatives for this geographic priority area. Based on the assessment and reasons given above, I find that the alternatives analyzed in the EA will have no significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be prepared.



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ROSENDO TREVINO  
State Conservationist

*December 20, 2001*

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Date